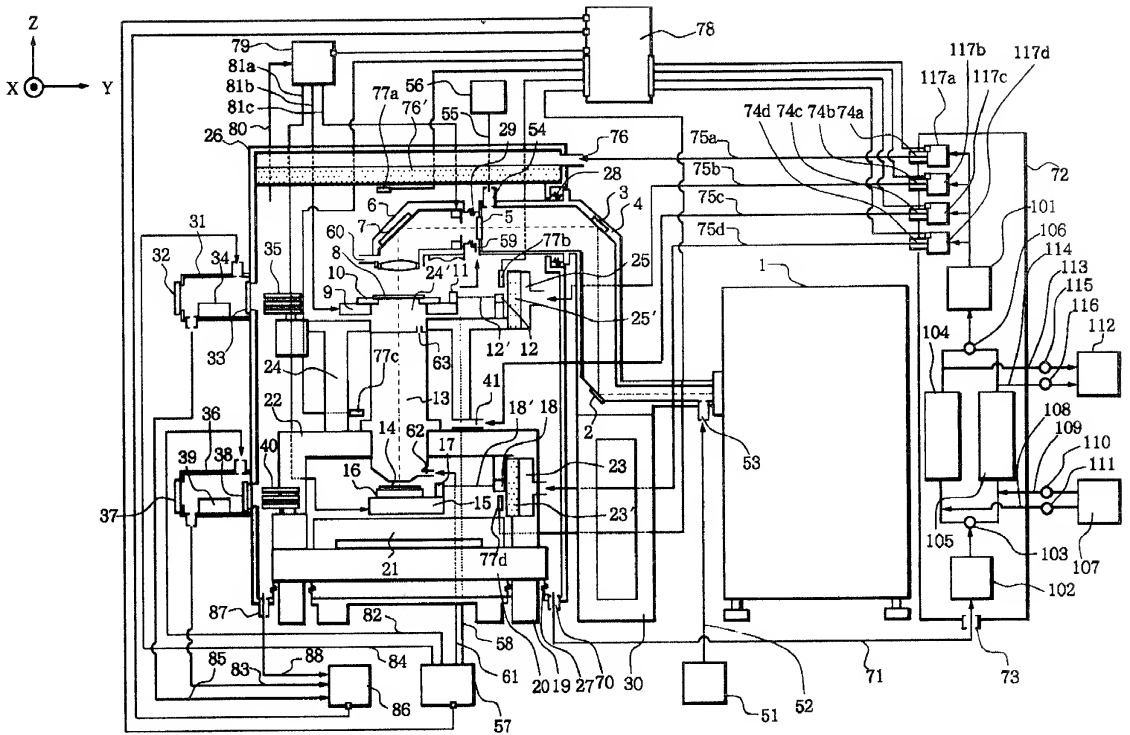
Z
X
Y
79
81a
81b
81c
80
26
77a
56
76'
55
29
54
76
78
28
3
4
6
5
7
60
8
10
9
59
77b
24'
11
25
25'
12'
12
63
41
18'
18
2
53
1
31
32
34
35
33
24
77c
13
22
14
62
17
16
15
23
23'
36
39
38
40
37
21
77d
87
82
58
85
83
88
84
61
20
19
27
70
30
86
57
51
52
71
73
74d
74c
74b
74a
75a
75b
75c
75d
72
117b
117d
117a
117c
101
106
114
113
115
116
112
104
108
109
110
111
105
103
107
102

FIG. 1

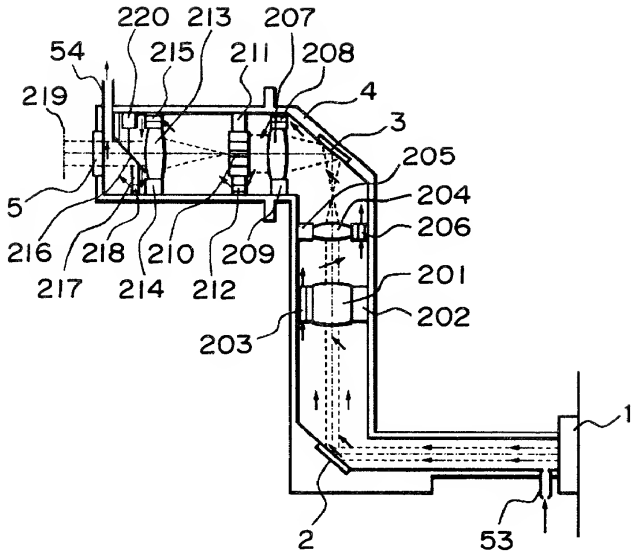
220
213
207
54
215
211
208
219
4
3
205
5
204
206
216
218
210
209
201
217
214
212
202
203
1
2
53

FIG. 2

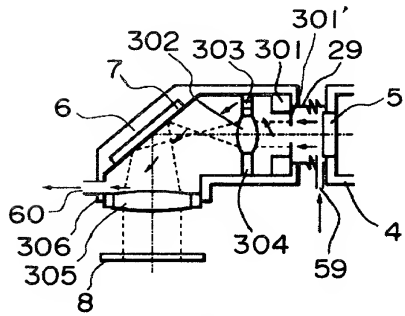
301'
302
303
301
29
7
6
5
60
4
306
304
59
305
8

FIG. 3

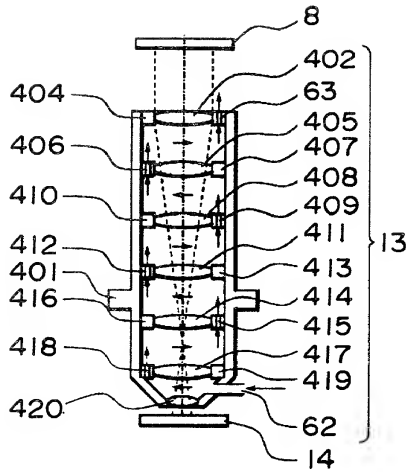
8
402
404
63
405
406
407
408
410
409
411
412
13
413
401
414
416
415
418
417
419
420
62
14

FIG. 4

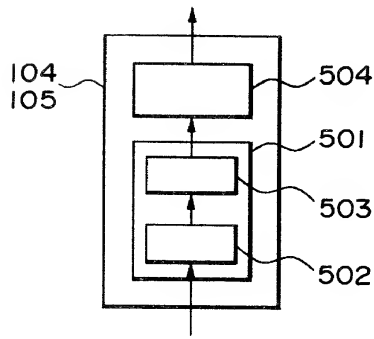
104
105
504
501
503
502

FIG. 5

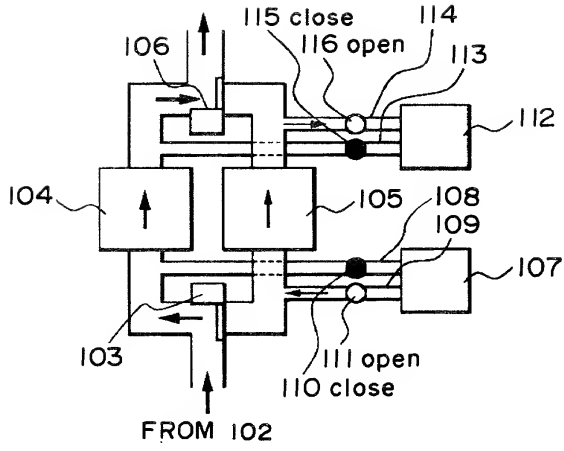
115 close
114
106
116 open
113
112
104
105
108
109
107
103
111 open
110 close
FROM 102

FIG. 6A

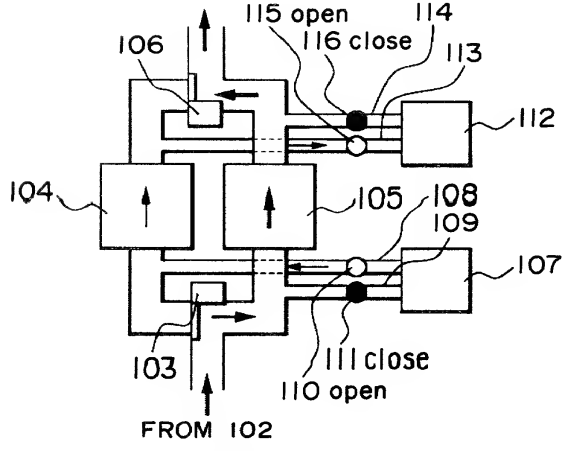
115 open
114
106
116 close
113
112
104
105
108
109
107
103
111 close
110 open
FROM 102

FIG. 6B

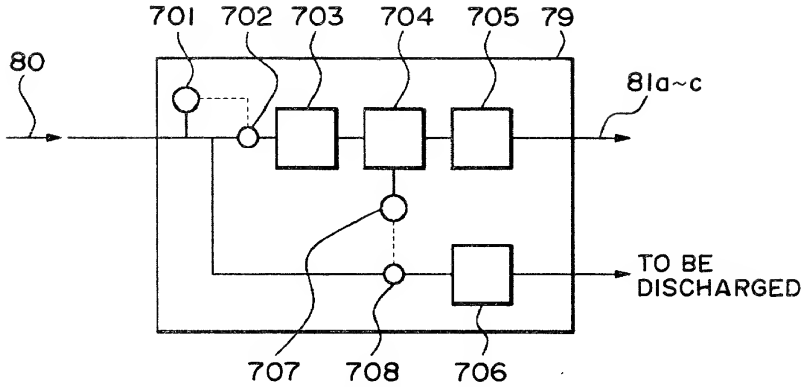
701
702
703
704
705
79
80
81a~c
TO BE DISCHARGED
707
708
706

FIG. 7

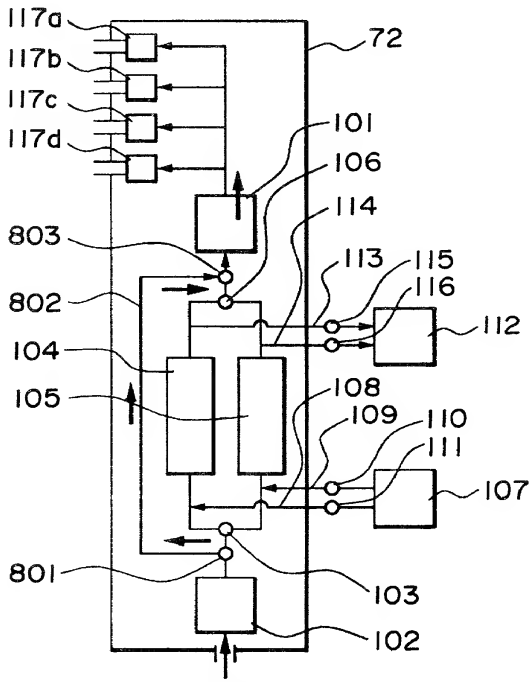
117a
117b
117c
117d
72
101
106
114
803
113
115
116
802
112
104
105
108
109
110
111
107
801
103
102

FIG. 8

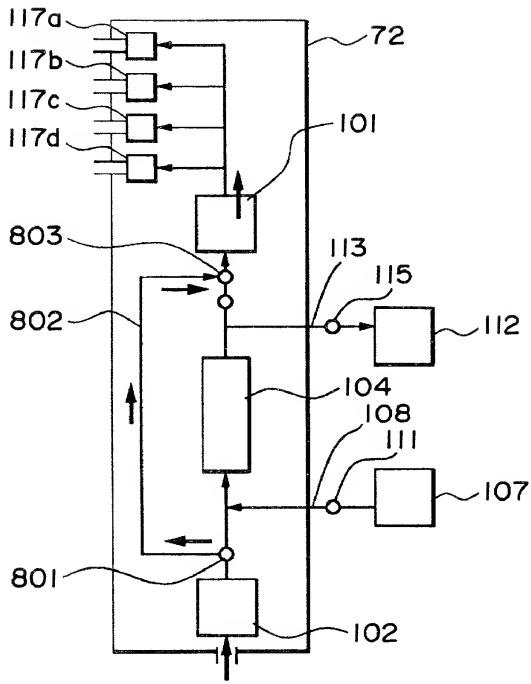
117a
117b
117c
117d
72
101
803
113
115
802
112
104
108
111
107
801
102

FIG. 9

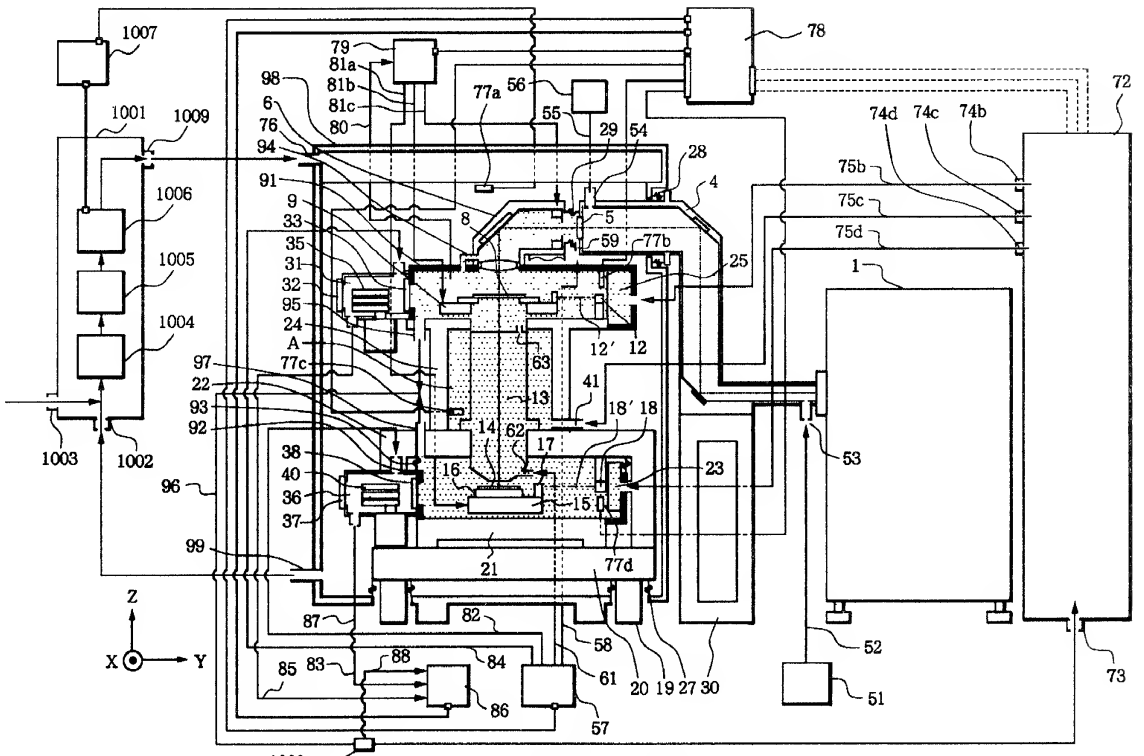
1007
1001
1009
1006
1005
1004
1003
1002
1008
79
81a
81b
81c
80
98
6
76
94
91
9
33
35
31
32
95
24
A
77c
97
22
93
92
38
40
36
37
96
99
87
85
83
88
84
86
82
58
61
57
20
19
27
30
77a
56
55
29
54
28
4
5
59
77b
25
12'
12
63
41
13
18'
18
14
62
17
16
15
23
21
77d
78
72
74d
74c
74b
75b
75c
75d
1
53
52
51
73
Z
X
Y

FIG. 10

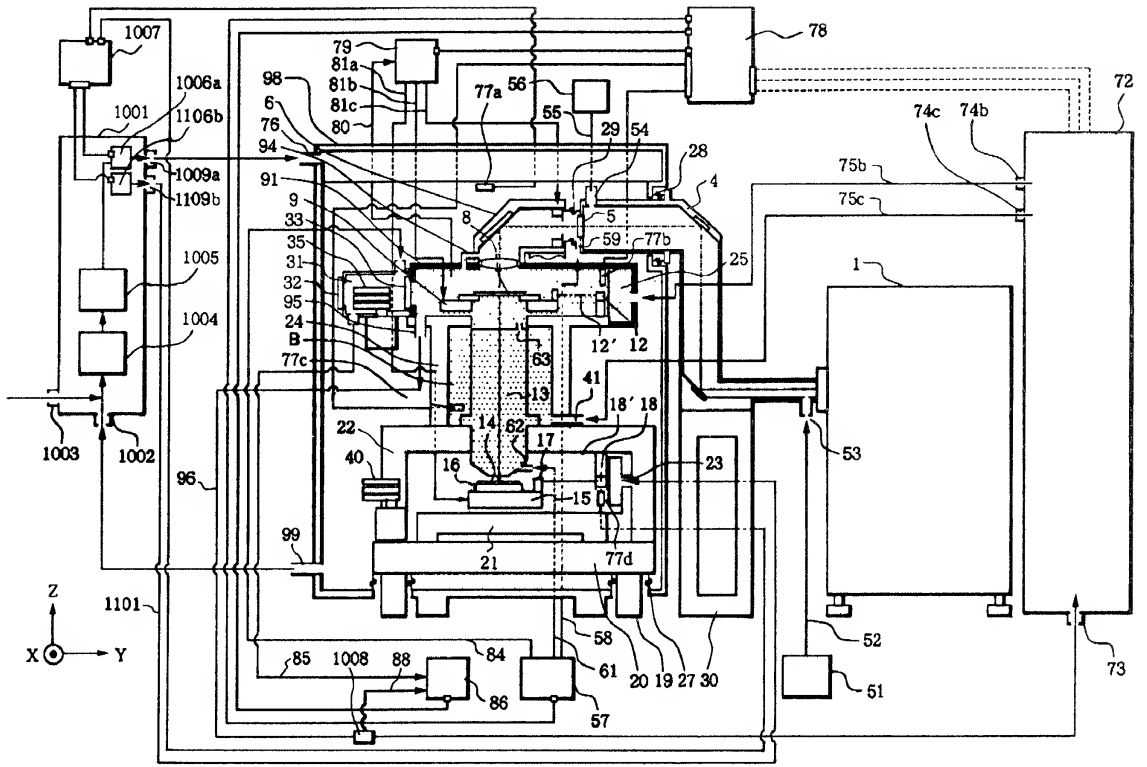
1007
1006a
1001
1106b
1009a
1109b
1005
1004
1003
1002
96
1101
Z
X
Y
79
81a
81b
81c
80
98
6
76
94
91
9
33
35
31
32
95
24
B
77c
99
85
1008
88
84
86
57
61
58
20
19
27
30
78
77a
56
55
29
54
28
4
8
5
59
77b
25
12'
12
63
41
13
18'
18
14
62
17
22
40
16
15
23
21
77d
53
52
51
72
74c
74b
75b
75c
1
73

FIG. 11

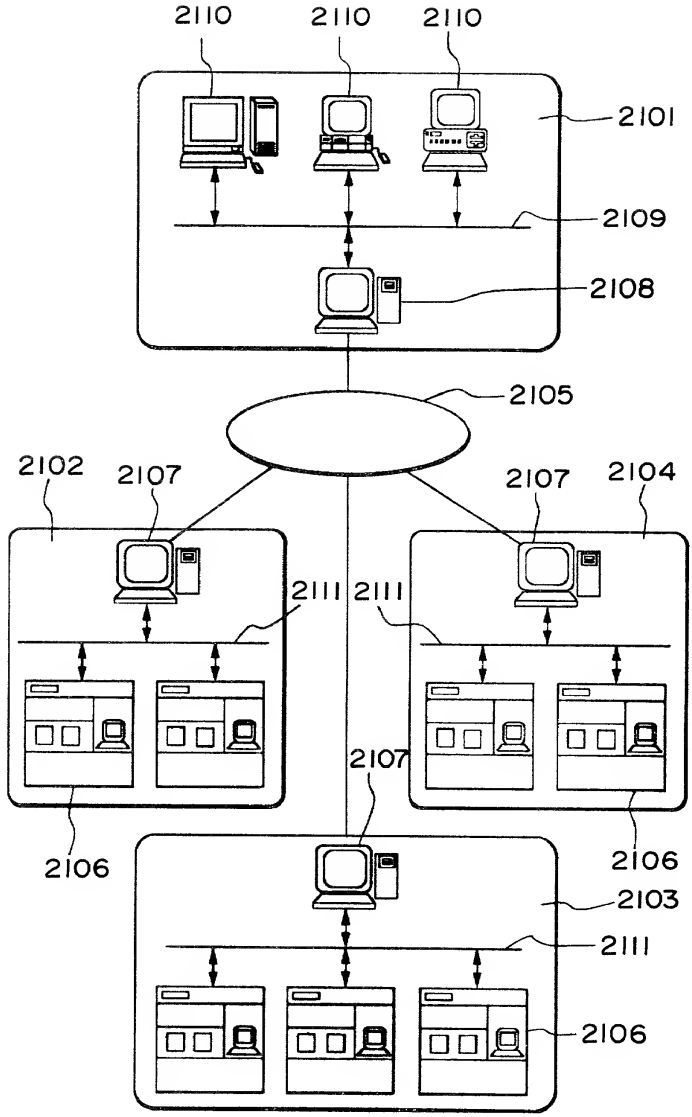
2110
2110
2110
2101
2109
2108
2105
2102
2107
2107
2104
2111
2111
2107
2106
2106
2103
2111
2106

FIG. 12

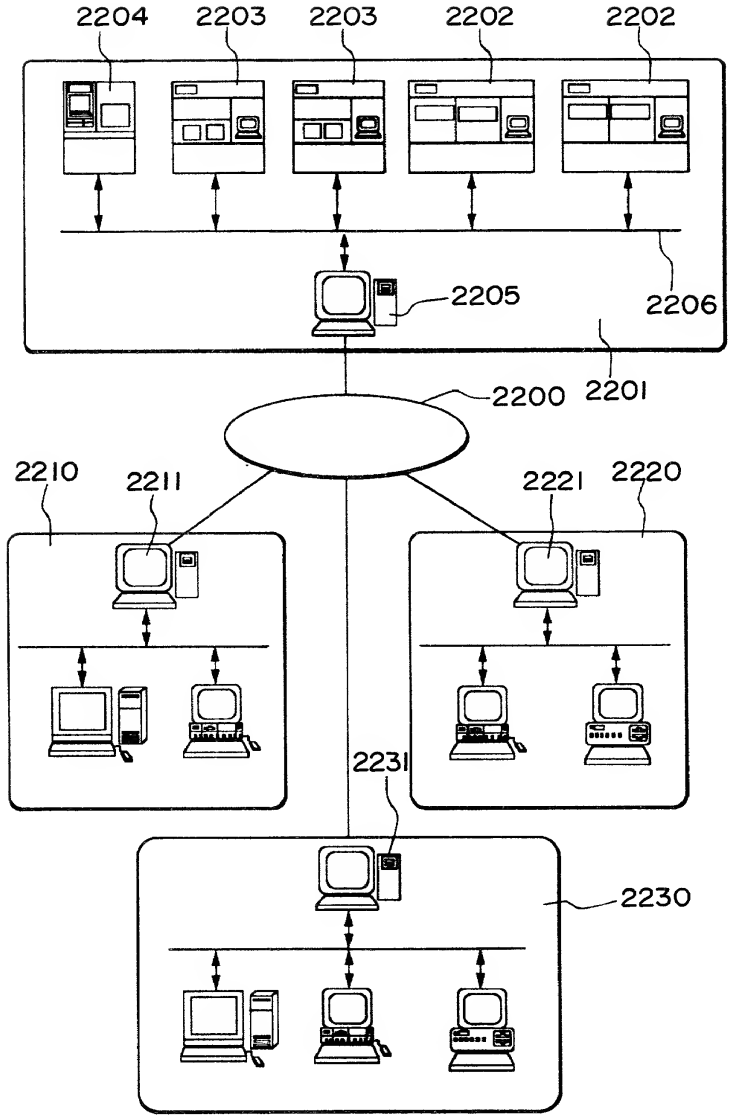
2204
2203
2203
2202
2202
2205
2206
2201
2200
2210
2211
2221
2220
2231
2230

FIG. 13

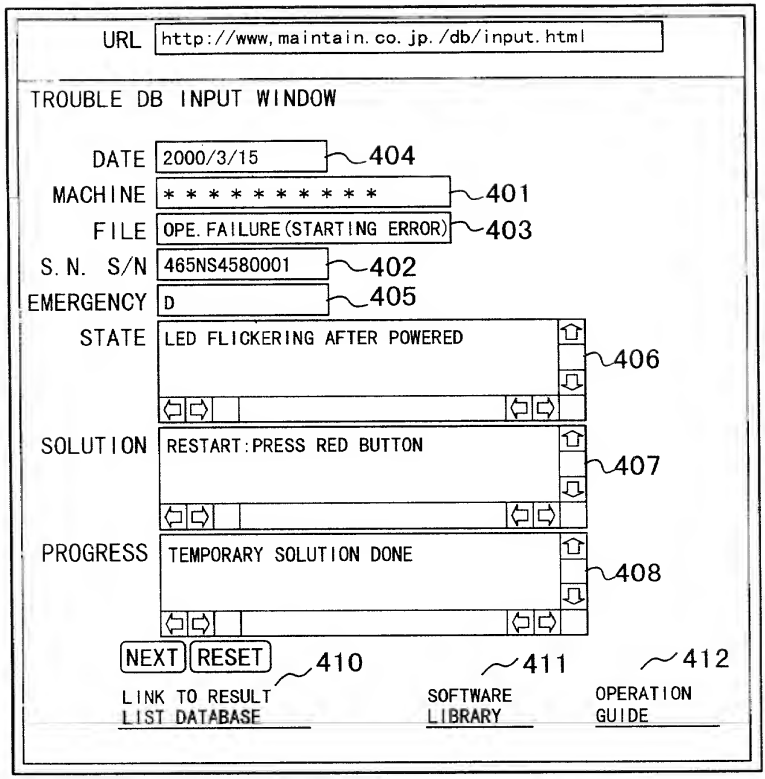
URL
http://www.maintain.co.jp./db/input.html
TROUBLE DB INPUT WINDOW
DATE
2000/3/15
404
MACHINE
* * * * * * * * * * *
401
FILE
OPE. FAILURE(STARTING ERROR)
403
S. N. S/N
465NS4580001
402
EMERGENCY
D
405
STATE
LED FLICKERING AFTER POWERED
406
SOLUTION
RESTART:PRESS RED BUTTON
407
PROGRESS
TEMPORARY SOLUTION DONE
408
NEXT
RESET
410
411
412
LINK TO RESULT LIST DATABASE
SOFTWARE LIBRARY
OPERATION GUIDE

FIG. 14

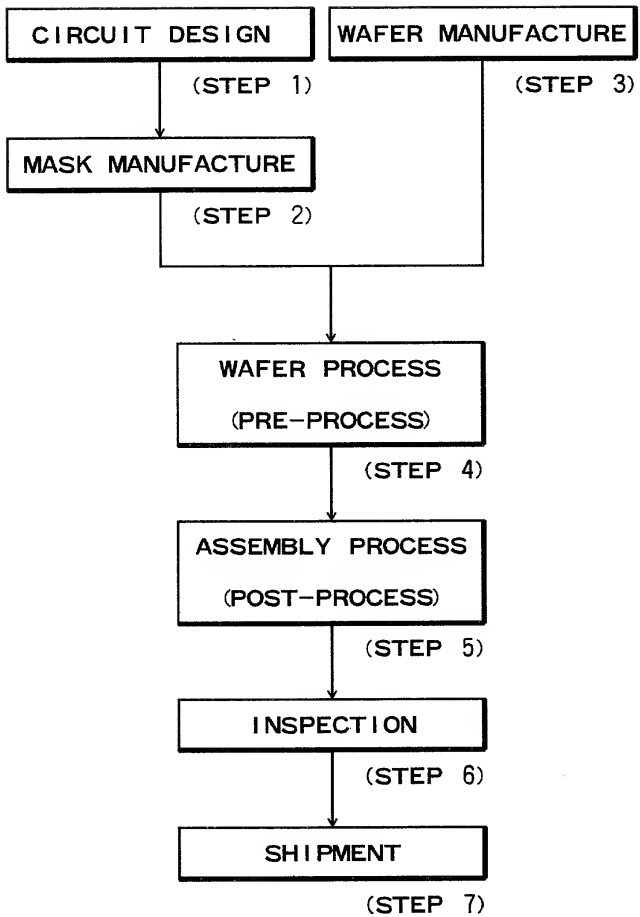
CIRCUIT DESIGN
(STEP 1)
WAFER MANUFACTURE
(STEP 3)
MASK MANUFACTURE
(STEP 2)
WAFER PROCESS
(PRE-PROCESS)
(STEP 4)
ASSEMBLY PROCESS
(POST-PROCESS)
(STEP 5)
INSPECTION
(STEP 6)
SHIPMENT
(STEP 7)

FIG. 15

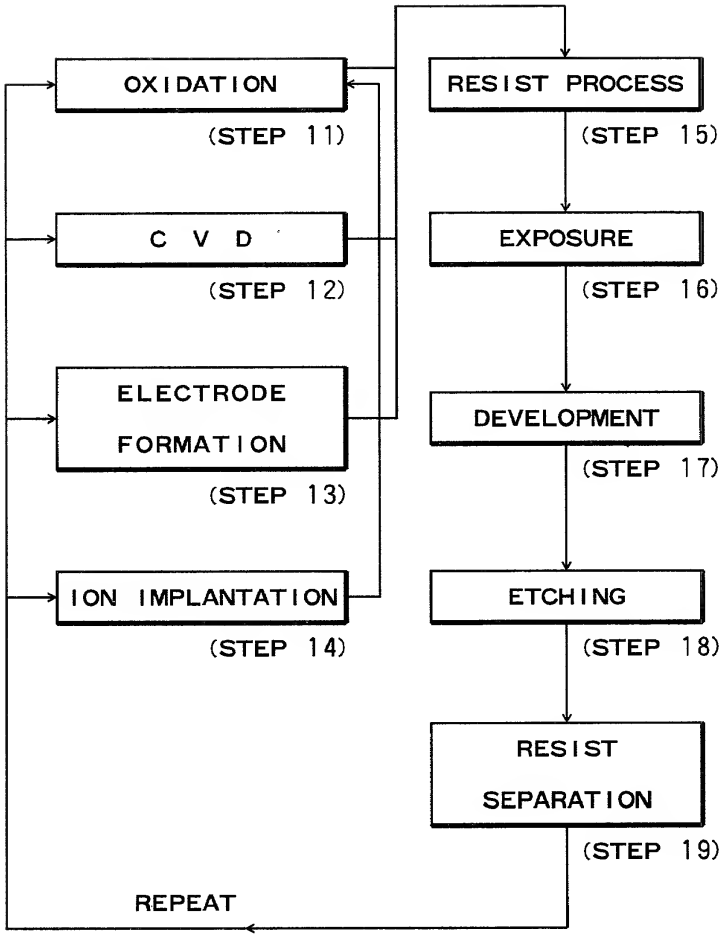
OXIDATION
(STEP 11)
C V D
(STEP 12)
ELECTRODE FORMATION
(STEP 13)
ION IMPLANTATION
(STEP 14)
RESIST PROCESS
(STEP 15)
EXPOSURE
(STEP 16)
DEVELOPMENT
(STEP 17)
ETCHING
(STEP 18)
RESIST SEPARATION
(STEP 19)
REPEAT

FIG. 16